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SAFEGUARDING YOUR FOOD AND DRUG SUPPLY -- No. 38

A radio talk by W. W. Vincent, chief of the western district, Food and Drug Administration, U. S. Department of Agriculture, delivered March 13, 1931, at 12:45 P.M., over KGO, San Francisco, and associated National Broadcasting Company stations.

MR. LAMB: This is Thursday, the day for our visit with W. W. Vincent, Chief of the Western District of the U. S. Food and Drug Administration. Thirty-eight weeks ago, he started telling us about foods and drugs, giving us information that we should have in order that we may purchase intelligently. His stories of the Government's activities with respect to maintaining the integrity of our food and drug supplies have been unusual. I asked him if he had a story today. He said, "No," but we all know that he has never yet disappointed us. Mr. Vincent, what are you going to talk about today?

MR. VINCENT: Well, Mr. Lamb, I have been reminiscing, - thinking over what I have told you folks and the many commodities I have not yet touched upon, - thinking about one of the first assignments given me when I entered the employ of the Government 15 years ago. I was sent out to get an official sample of a cake icing. An official sample, for the Government's purpose, must come from material that has been in interstate commerce or from a shipment in the course of transportation in interstate commerce.

MR. LAMB: Well, what in the world did the Government want with a sample of cake icing? That's nothing but sugar, egg white and flavor, isn't it?

MR. VINCENT: Ordinarily, that is right. Manufacturers color some cake icings and it was the color used in this instance that prompted the request for the sample. The manufacturer was coloring his chocolate icing with iron oxide, or iron rust. I never succeeded in getting that official sample. The manufacturer learned of my attempts and immediately ceased incorporating iron rust in his product. He had previously had one experience in Federal court.

MR. LAMB: Well, I've eaten some heavy cake in my time. I wonder if it was the iron in the icing?

MR. VINCENT: Probably not. Few manufacturers ever used iron rust to color food products. Harmless artificial colors serve their purpose pretty well.

MR. LAMB: I take it that you are going to talk about the use of artificial color in foods. Have you something for us on that topic?

MR. VINCENT: Not today. I'll speak about artificial color later. Today, I thought I would talk of chocolate products. It's a big subject. I hardly know where to start. Your Food and Drug Administration annually gives much attention to these products. Practically all cacao beans - from which chocolate is made - imported into the United States are examined. Many lots have been found moldy and have been detained, and the importers required to eliminate the bad beans or else re-export them. Manufactured cocoa and

chocolate products, both imported and domestic, get attention. The Federal Notices of Judgment relate many actions that have been taken against adulterated chocolate products. Some were adulterated by the addition of cacao shells. Some were adulterated through cocoanut oil having been substituted for cocoa butter, a valuable ingredient of chocolate. The cocoa butter had been abstracted and the cocoanut oil substituted in its place.

Mr. LAMB: Mr. Vincent, all the folks listening in will be interested in that story of chocolate I heard you telling your new inspector the other day. What did you say the word chocolate meant?

Mr. VINCENT: Well, the botanical name of the cacao tree is "Theobroma". Theobroma means "Food of the Gods", and the early Aztecs so held it. The cacao tree is believed native to tropical America. Cortez, in his conquest of Mexico early in the 16th Century found it growing both wild and under cultivation. Certain writers indicate it has been cultivated in Mexico between three to four thousand years. The Aztecs used the beans as coins. The chocolate made from them was the drink of royalty. History tells that Montezuma, then king, took no other beverage. So esteemed was chocolate as a drink that golden goblets with spoons of the same metal were used in serving it. Cortez demanded 300 loads of chocolate as part of the tribute exacted of Montezuma.

Chocolate's commercial history dates from the year 1528 when Cortez, returning to the Court of Spain, delivered to his country this new food product. For almost a century, the Spaniards kept secret the preparation of chocolate from cacao beans. The Italians first learned this secret and from thence it spread quickly to France and other parts of Europe. The 17th Century saw the establishment of coffee and chocolate houses throughout England and Germany. Attending them quickly became the vogue. In France, chocolate manufacture was a monopoly granted by the King. Europe's appreciation of chocolate caused the cultivation of the cacao tree to spread throughout the tropical regions of Central and South American, Porto Rico, Haiti, Trinidad, Jamaica, The Philippines, Ceylon, Portuguese East Africa, and the Gold Coast of Africa.

You should know something about cacao beans. They are rather peculiar. The beans grow in a pod embedded in a sweet pink pulp, 29 to 50 beans in each pod. Pods are about the size of a small cucumber and, when ripe, purplish yellow in color. They seem to grow right out of the trunk of the tree, so short is the stem attaching them thereto.

The manufacture of chocolate starts with harvesting the beans. The pods are dried on the ground for a day. The beans and pulp are then removed, placed in piles, or vats, and allowed to sweat from 9 to 12 days. In the sweating process, they undergo a fermentation which destroys some of their natural bitter taste and develops in part the rich brown color they bear upon arrival here. In the chocolate factories, the beans are first screened to remove coarse debris and then roasted until free from the vinegary or sour odor they bear. Roasting serves two functions: it develops the flavor and aroma of the bean and renders the shell more friable or easily crumbled. The beans are then crushed, and fanned or

sifted. This separates the shell, the germ, and the nib, as the broken meat of the bean is called. Manufacturers generally blend together, before grinding, clean nibs from different sources. This gives a standardized product. Beans produced in different localities possess different qualities of flavor and color. The blended cracked nibs are then ground in stone burr mills. The heat generated in the grinding is sufficient to melt the material and it flows from the mills as the bitter chocolate you know - with its rich, agreeable odor and taste.

I won't go further into the technical details of chocolate manufacture. Rather, I shall give you some facts about the industry and its products -- facts you should know if you want to buy chocolate products with discrimination. Did you know that the world consumption of chocolate is about 500,000 tons annually, of which the United States alone consumes about 40% or around 200,000 tons? Lots of opportunity for discrimination in the purchase of this huge quantity.

Now let's go back to the chocolate liquor I mentioned as flowing from the grinding mill. That is the base from which all chocolate and cocoa preparations are made. That liquor contains no less than 50% of cocoa fat, or cocoa butter, as you know it. Upon extraction of that butter, which is accomplished through subjecting the liquor to hydraulic pressure, there remains the pressed cake and, upon grinding, this cake becomes the cocoa powder of commerce. Cocoa is known as "Dutch-process" or "Alkalized Cocoa" if, in its preparation, alkali was added to the product either before roasting, during roasting, or to the chocolate liquor itself. The addition of alkali tends to darken the color of the product and probably neutralizes the free acidity. Such alkali-treated cocoa was formerly sold as "Soluble Cocoa" or "Instant Cocoa", but under actual test it has been shown to be no more soluble than the untreated cocoas.

I will give you the Government definition and standards for cacao products. You should know these.

Chocolate, known as Plain Chocolate, Bitter Chocolate, Chocolate Liquor, Chocolate Paste, or Bitter Chocolate Coating, is the solid or plastic mass obtained by grinding cacao nibs and contains not less than 50% of cacao fat - and, on the moisture and fat-free basis, not more than 8% of total ash - not more than 4/10th per cent of ash insoluble in hydrochloric acid - and not more than 7% of crude fibre.

Sweet Chocolate, or Sweet Chocolate Coating, is chocolate mixed with sugar - with or without the addition of cacao butter, spices, or other flavoring materials - and contains on the moisture-sugar-and-fat-free basis, no greater percentage of total ash, ash insoluble in hydrochloric acid, or crude fibre, respectively, than is found in moisture and fat-free chocolate.

Milk Chocolate, or Sweet Milk Chocolate, is the product obtained by grinding chocolate with sugar - with the solids of whole milk or the constituents of milk solids, in proportions normal for whole milk - with or without cacao butter or flavoring material. It contains not less than 12% of milk solids.

Cocoa, or Powdered Cocoa, is chocolate deprived of a portion of its fat and pulverized, and contains, on the moisture and fat-free basis, no greater percentage of total ash, ash insoluble in hydrochloric acid, or crude fibre, respectively, than is found in moisture and fat-free chocolate.

"Breakfast Cocoa" is cocoa which contains not less than 22% of cocoa fat.

Sweet Cocoa, Sweetened Cocoa, is cocoa mixed with sugar and contains not more than 65 per cent of sugar in the finished product and, on the moisture-sugar and fat-free basis, no greater percentage of total ash, ash insoluble in hydrochloric acid, or crude fibre, respectively, than is found in moisture and fat-free chocolate.

Sweet Milk Cocoa is the product obtained by grinding cocoa with sugar - with the solids of whole milk, or the constituents of milk solids in proportions normal for whole milk - and with or without flavoring materials. It contains not less than 12 per cent of milk solids.

Dutch-Process Chocolate, "Alkalized Chocolate", and Dutch-Process Cocoa, "Alkalized Cocoa", are modifications, respectively, of chocolate and cocoa, in that in their manufacture an alkali carbonate, or other suitable alkaline substance, has been employed. In the preparation of these products, not more than three parts by weight of potassium carbonate, or the neutralizing equivalent thereof in other alkaline substance, are added to each 100 parts by weight of cacao nibs. The finished products conform to the standards for chocolate and cocoa, respectively, due allowances being made for the kind and amount of alkaline substance added.

All chocolate products contain the alkaloid, "Theobromine", closely related to the alkaloid found in tea and coffee. They are therefore, in addition to being highly concentrated foods, considered as mildly stimulating.

Remember, now, when buying chocolate preparations, to read the label carefully. "Breakfast Cocoa", is usually richer in fat than "Cocoa", unqualified. In some chocolate products, skim milk is used in lieu of whole milk and where this is true the label will tell you so, or else it will not read "Milk Chocolate". Likewise, if cereal products, such as starch or arrowroot flour are incorporated into the chocolate, the label will so inform you, or else the product will be sold under a fanciful name and no mention made of its being a chocolate product. If the confections you purchase appear as chocolate-covered but the label does not bear the word, "Chocolate", upon it, you may assume that cocoanut oil has probably been substituted in part for the cocoa butter that it should contain.

Occasionally, you may observe chocolate products which appear gray in color, having lost their luster or gloss. Such graying does not necessarily mean that the product is old, but rather that it has probably been

subjected to somewhat excessive temperature, resulting in the cocoa butter having melted and worked its way to the surface, whereupon, re-solidifying it has given the product a somewhat mottled appearance.

Well, folks, my time is up. Again let me urge you to read the label. If you want information on chocolate, or on the many other food products of which I have told you in order that you may read labels more intelligently, drop a post-card to W. W. Vincent, care the station to which listening, or U. S. Food and Drug Laboratory, San Francisco. This will bring you the material free.

Next week artificial colors. They should interest you.

